United States Department of Agriculture
Region 8, Soil Conservation Service
Albuquerque, N.M.

SUGGESTIONS FOR A TEACHING UNIT IN CONSERVATION

For Intermediate Grades

Part I

Compiled By
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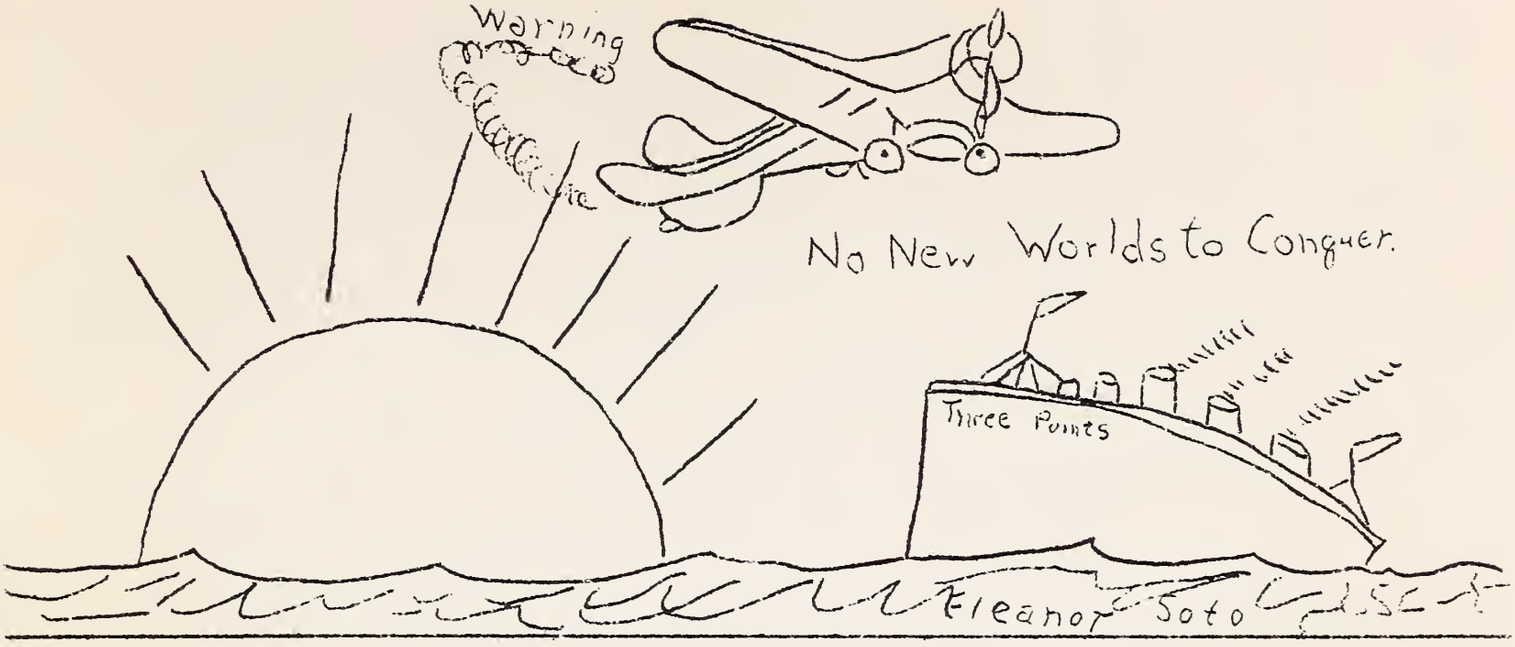


SUGGESTIONS FOR A TEACHING UNIT
IN
CONSERVATION

Land Use- Grazing- Farming

Teaching Correlation by Mr. and Mrs. Otto Fritz,
Three Points School, Pima County, Arizona, and
Mrs. Helen Campbell, Sahuarita School, Pima County,
Arizona.

The theme running throughout this unit was to develop a knowledge of good and bad land use, proper and improper grazing methods, good and bad farming practices.

In an eight-weeks' project, the natural interest of children in things about them, and the spirit of adventure was centered upon the history of the land on which they live; the change in the appearance of the land as different peoples lived their lives upon it; the productiveness of the land during these changes; the change in type of crops raised, etc. They talked of the days when Silver Bell Lake was really a lake, and made a trip to the land where there was once a lake. From this interest they readily began a study of the land on which they live, from early days until now. The class made trips to the surrounding country, which brought the realization that water, wind and no vegetation were fast destroying their land. They watched it wash away in a heavy rain.

In Geography, History, English and Art, they wrote and pictured their story as they worked out a social unit of land and water conservation.

Division of Education - Information
Southwest Region, Soil Conservation Service
Albuquerque, New Mexico

LAND USE AND LAND MANAGEMENT
Objectives

1. To study the land about our school; the watershed; the ground cover; the hills; the woods.

2. To learn what certain terms mean--land use, ground litter, ground cover, water table, water cycle, precipitation, evaporation, transpiration, controlled grazing, etc.

3. To study the water cycle; where water comes from; its benefit to us; its destruction in unbalanced nature; precipitation; evaporation; transpiration; seepage; absorption; run-off.

4. To know how grass and trees grow; where food is manufactured; where food is stored; value of grass and trees to ground, i.e., (cover for ground, roots hold soil, grass slows run-off, etc.)

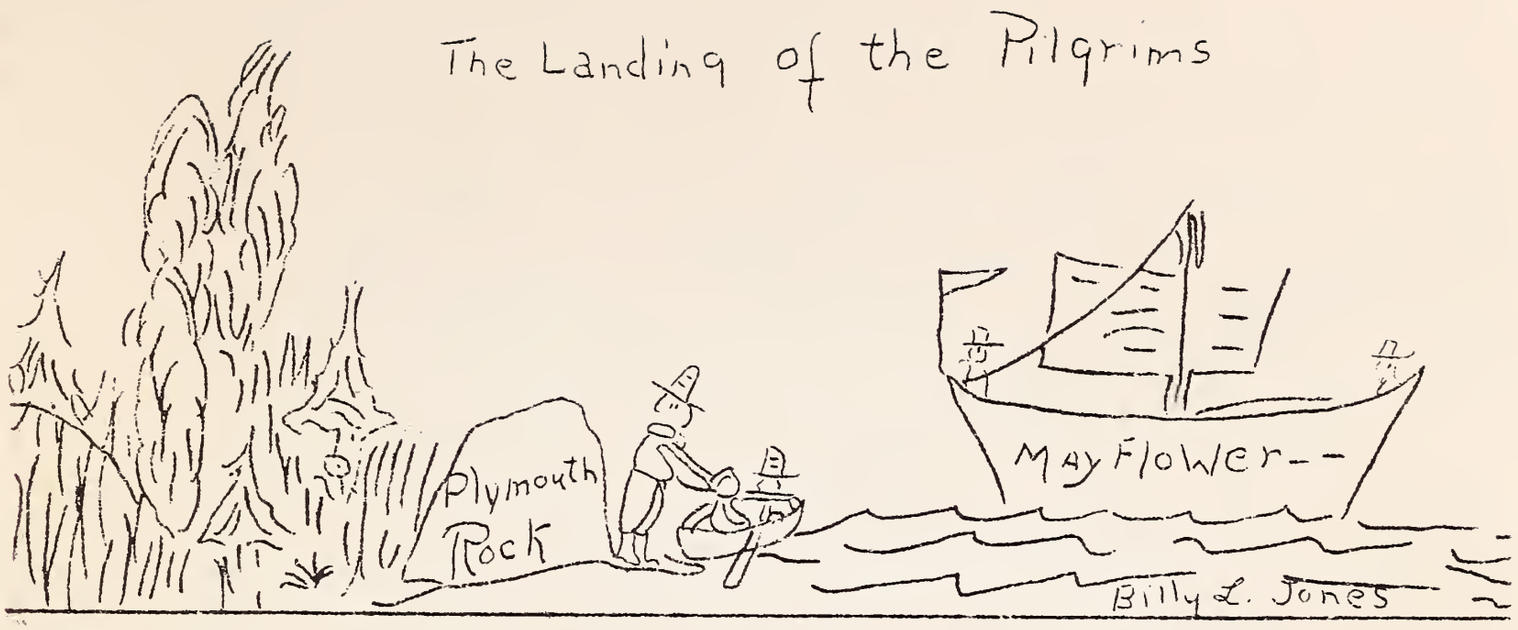
5. To know what erosion is--natural, accelerated (wind, sheet, gully)

6. To understand some conservation methods.

7. To relate all these to our land. To study the story of our land in History and Geography from early days until now.

Learning Situations

We made study charts to call attention to certain fundamental principles in a study of the land, i.e. (water cycle, balance in nature, how plants and trees grow, proper use of forest and grazing land, etc.) We began our unit by a study of the land as it was when the Indians roamed its length. We followed the story through the episodes of Pilgrim arrival, home-making, farming the land, on through the story of moving West. We learned of the coming of the miners, the cattle men, the sheep men. We viewed the land with its tall grass and thickly-covered forest lands. Finally, we saw it as it is today, with its topsoil going, and arroyos gouging the surface.



LANGUAGE--ORAL AND WRITTEN

Objectives

1. To increase our powers of observation of land and land use.

2. To recount the stories of our field trips in an interesting manner to the class.

3. To write a story of the appearance of the land today.

4. To write stories of the land and its uses at different stages of our history.

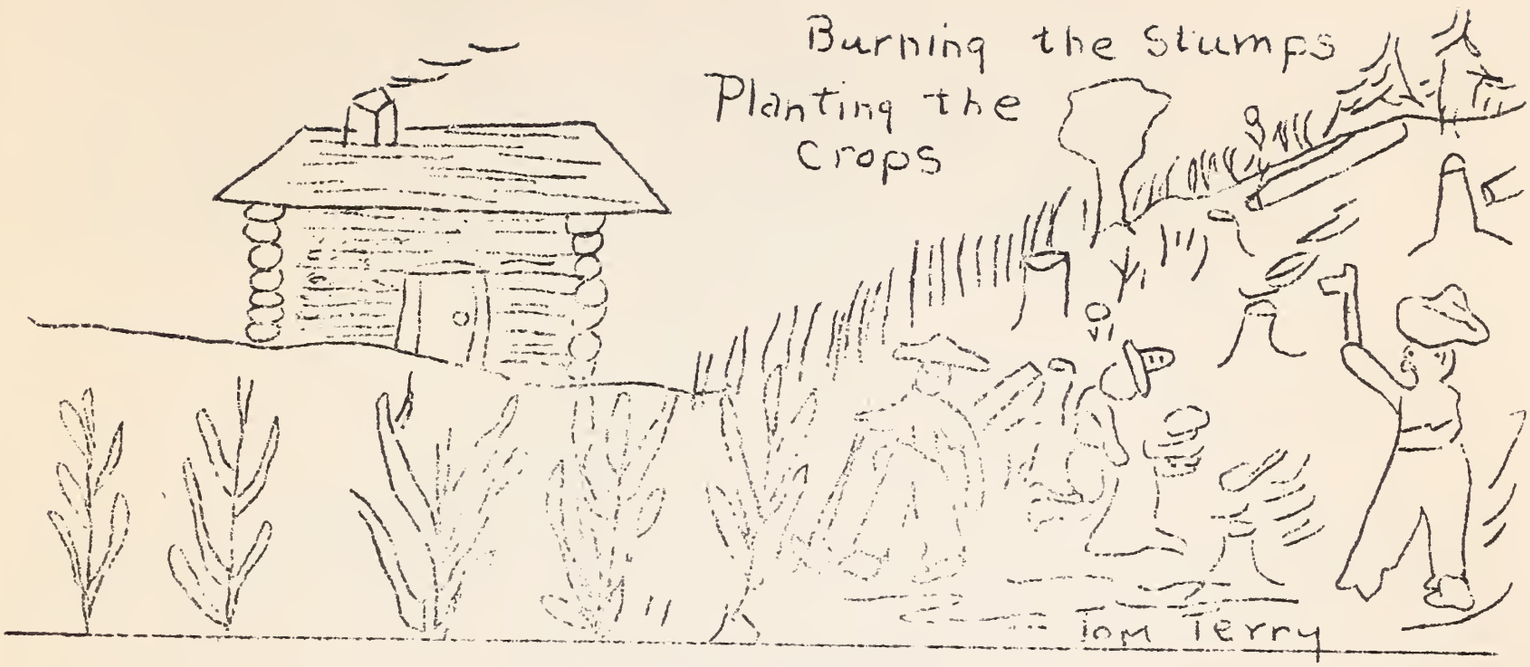
5. To gain in ability to speak freely and interestingly to the class; to improve our composition ability.

6. To broaden our horizon of interest.

Learning Situations

We found out from our History, and other books, what the land was like when the white man first came to America. We read stories of the struggle for existence by the early Pilgrim Fathers. We studied the way they laid out their homes and farms. We studied the farming methods of the early Pilgrims and compared them to today. We found out from our Geographies the various watersheds and divides which controlled our water supply. We wrote to the Forestry Department to find out about the forests and their use, care and destruction throughout the various periods of history. We followed the trail of the early pioneers in the Westward movement, and the tale of the land in its various periods of use; the consumption of wood for the smelters; the overgrazing of land by the early cow and sheep people; the wasteful farming methods of the various periods. We coordinated this study in story and picture.

We visited CCC Camps and studied the methods of helping to restore a balance to nature. We saw water-spreading structures, planting, terracing, proper farming methods, etc. We wrote stories of our visits for English Class.



READING AND LITERATURE
Objectives

1. To read outside books to help us understand.

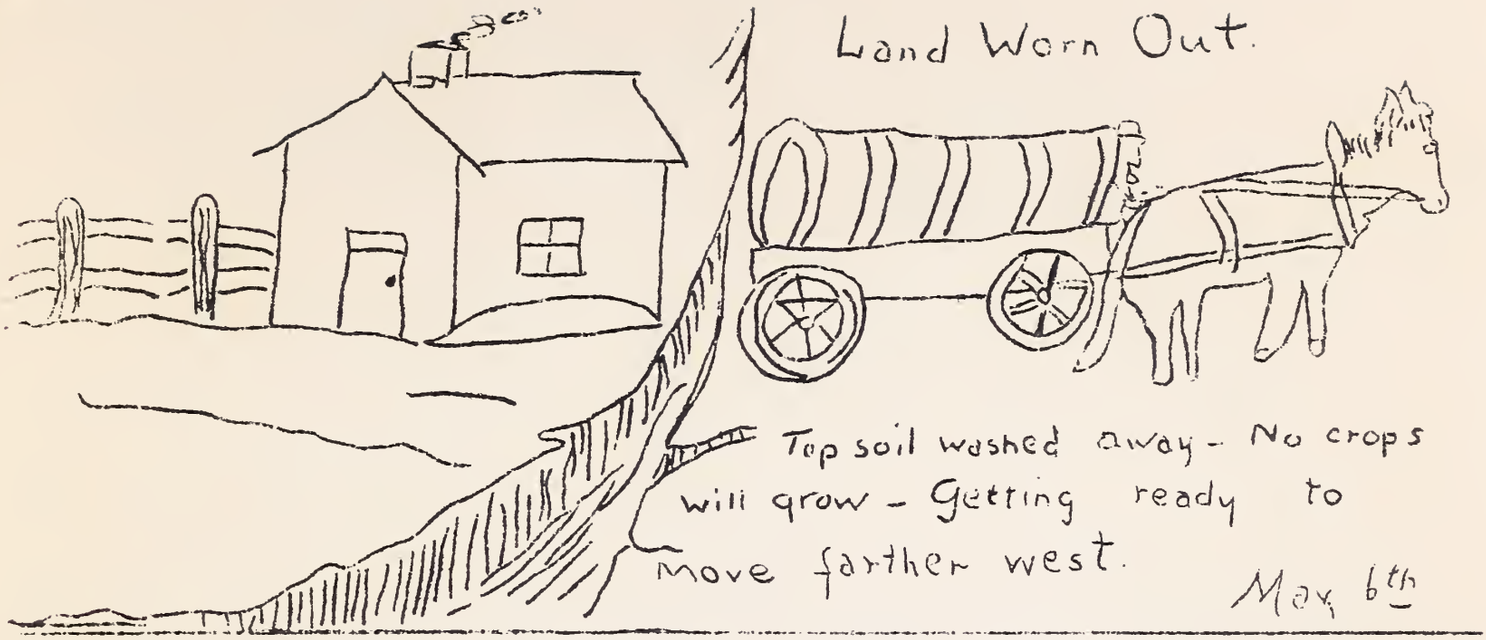
2. To cut out articles from newspapers and magazines.

3. To gain an appreciation of new words, especially in relation to land, history and geography.

4. To add new zest and interest to our study of American History.

Learning Situations

We read "Deserts on the March" aloud in class. We brought in copies of early newspapers, telling of mine discoveries, early land claims, stage coach travel, and the exciting life of the early pioneer. We read of new and big farm machines used in Canada and on the Great Plains of the United States. We read a history of Arizona; we kept a bulletin board of interesting current news on conservation and land and water subjects.



PENMANSHIP AND SPELLING
Objectives

1. To improve our composition, spelling, penmanship, neatness.

2. To print legibly and neatly captions for art work.

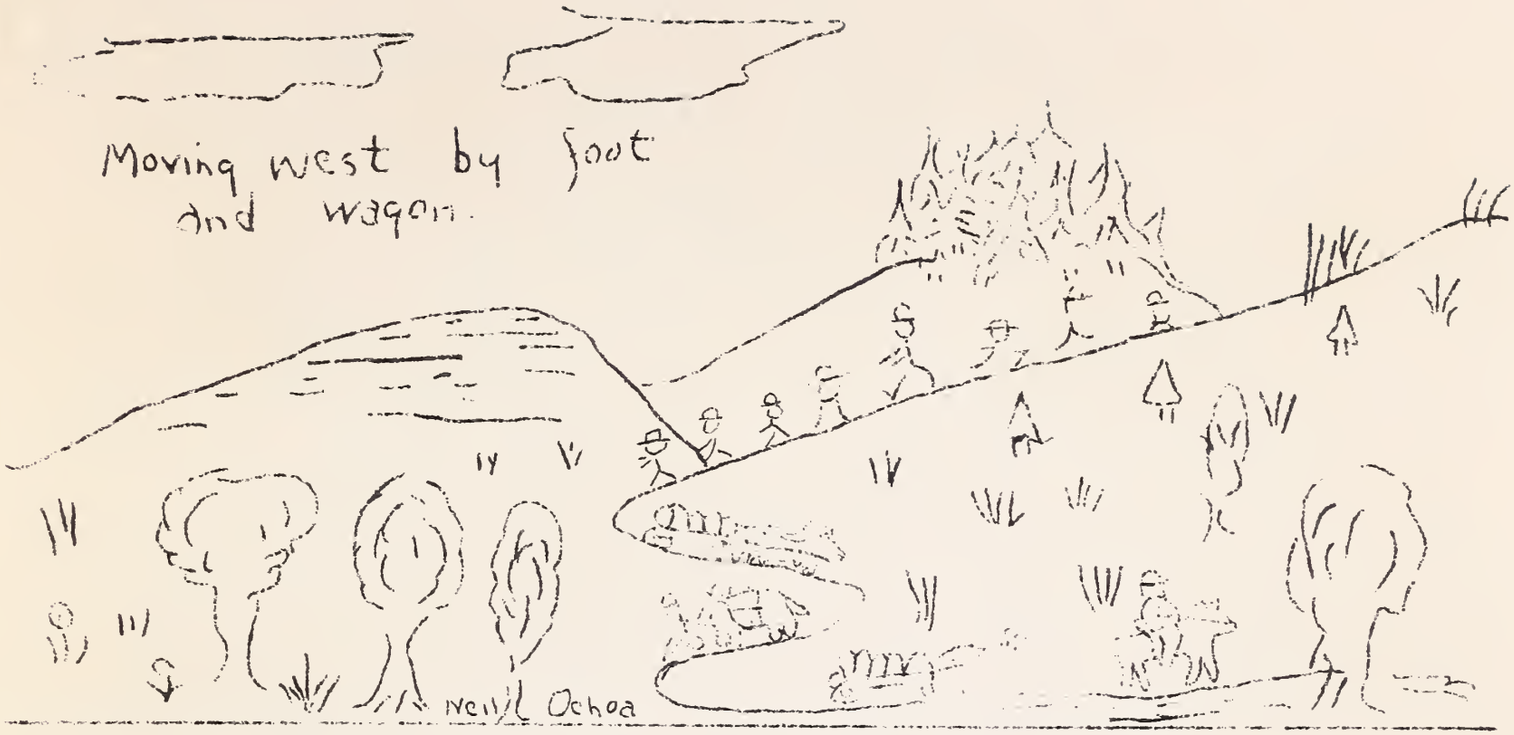
3. To increase our vocabulary related to words about land, water and history.

Learning Situations

We made word lists. We later made a history, and a geography land use dictionary of words and phrases with definitions and illustrations, i.e., Contour Plowing--Furrows plowed around a hill running like the grade.

Words Included in Study

percolator
conservation
erosion
accelerated
precipitation
evaporation
transpiration
seepage
subsoil
root
predatory
watershed
water cycle
legumes
grazing
herding
bedding down
trailing
plowing
run-off
drainage
irrigation
forest
terrace
dike
dam
arroyo
gully
canyon
mountain
wash
slope
vegetation
ground cover
litter
humus
engineer
rotation
stripping



OTHER SUBJECTS

Arithmetic

To study the saving or loss on good and bad farming methods; grazing control; water uses; forest care; fire control, etc.

To compare costs of living today and long ago. To study ways that soil helps our livelihood.

Art

To make pictures showing changes in living conditions throughout periods of history. To picture good and bad land use studies.

Nature Study

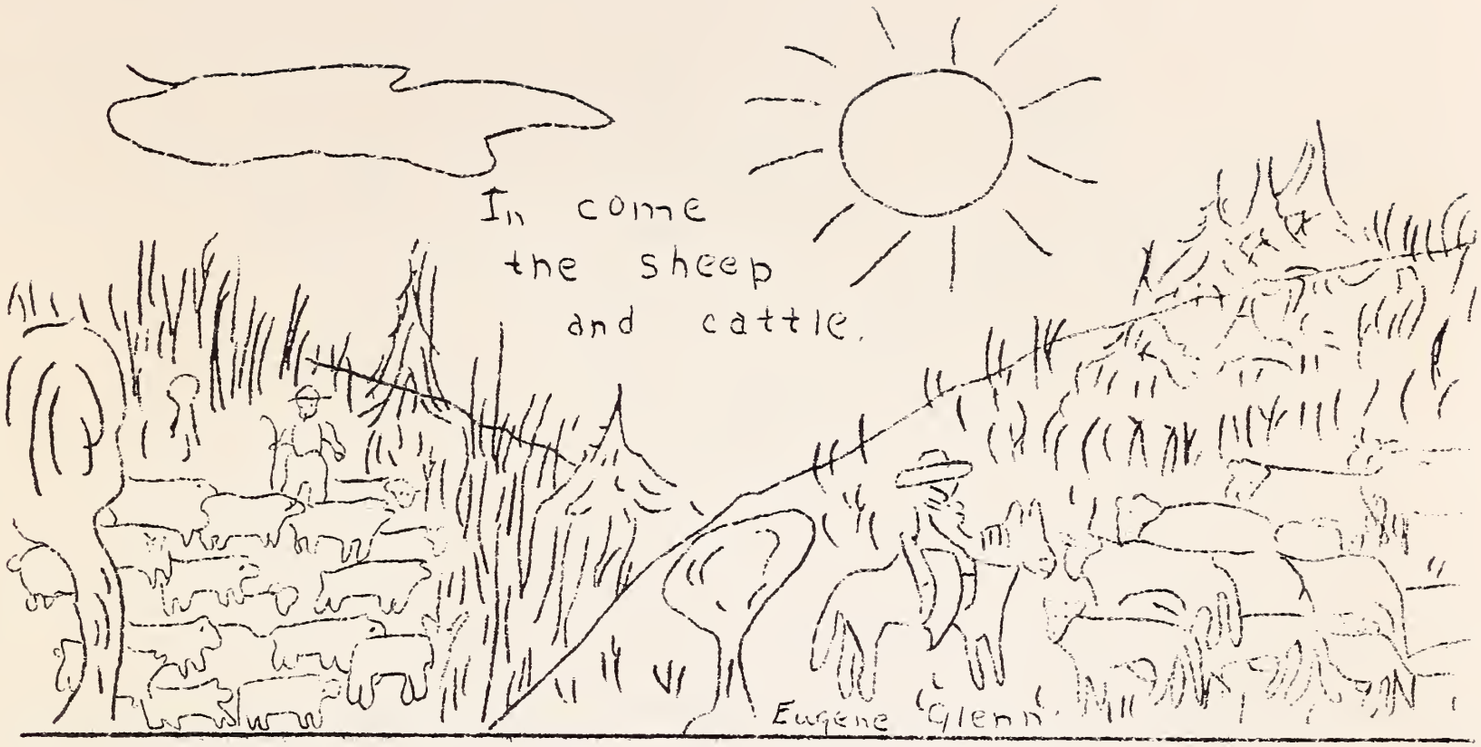
To learn to distinguish between good and bad vegetation. To become familiar with local birds. To know local game and their habitat. To study the value of game to the balance of nature.

Manual Training

To make relief maps of surrounding country. To make models of good and bad land use and farm practices.

Music

To learn songs relating to periods of history. To learn certain songs of the woods, water, land.



LEARNING SITUATIONS

We worked out problems in Arithmetic related to the land, i.e.,-- A man had 120 head of cattle on a section of good grassland. After many years of neglect and erosion he could put only 40 head of cattle on his section. How many acres were needed before neglect and erosion? How many acres were needed for each head of cattle after many years of neglect and erosion?

We worked out problems on the value of land in produce, and consequent loss from topsoil destruction.

In Art we made a pictorial story beginning with early settlers and following through each period of history. We prepared good and bad land practice pictures, i.e., old style of plowing uphill and present contour plowing and terracing.

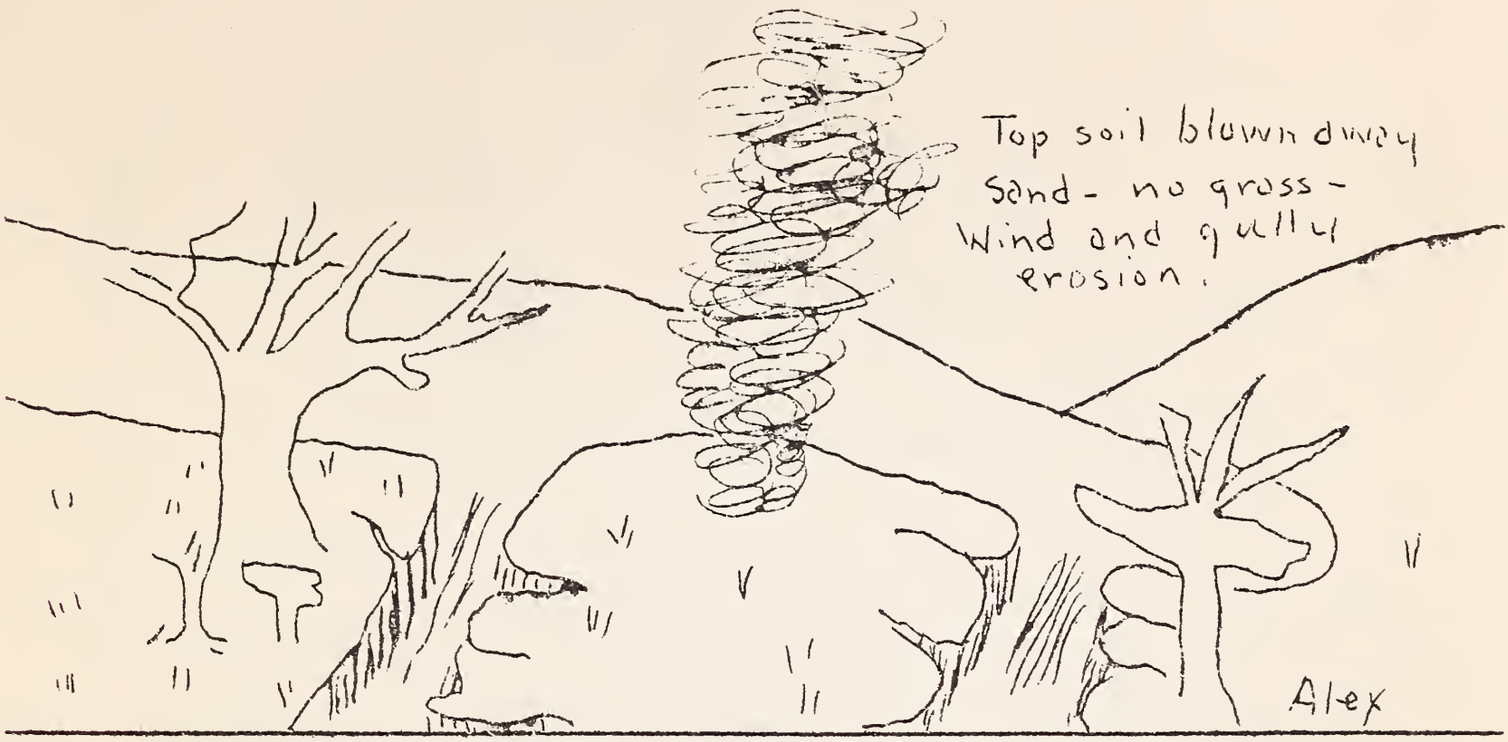
In Nature Study we made a collection of grasses, bushes and flowers in our school area. We mounted these for exhibit in conservation work. Different groups selected a phase of the program to make proper collections for illustration--bird pictures, game pictures.

In Manual Training relief models were constructed, portraying land use, good and bad, and different periods of history with corresponding land conditions.

We wrote a play in English Class which told the story of the land in the early days of the Pilgrim Fathers, down to our present day. We made our costumes of the different periods, and gave the play to the whole school at the completion of our project. We invited our parents, and had on exhibit pictures from the Art Department, our models from the Manual Training Department, and our collections of growing things from Nature Study Class. Several members of the class were selected as guides to conduct our visitors around the exhibit.

DURING THE STUDY THE FOLLOWING QUESTIONS AND PROBLEMS WERE RAISED FOR DISCUSSION:

1. What do we mean by land use?
2. What is ground cover?
3. What is a forest community?
4. Why do forests need small trees as well as big trees?
5. What age trees are suitable for fuel; lumber; which trees should not be cut for fuel or lumber?
6. How does a tree grow? Where does a tree manufacture its food? Where does a tree get its nourishment?
7. What is ground litter? Of what is it composed? What does it do for us? What is humus?
8. How does grass grow? What part of the grass plant manufactures its food? What part stores its food? What happens if grass is not allowed to grow until it has its blade or leaf?
9. Of what value is grass besides nourishment for our animals? (Slows water, catches silt, roots hold the soil, etc.)
10. Where does the water for the earth come from? How does it reach the earth? Where should it go before returning to the ocean, lake, pond, river, etc.?
11. What does water do for us? Why is it necessary that some water travel through the ground instead of rushing away over the top?
12. Is it wise to plow a steep slope? If not, why not? How should one plow on any slope? Why?
13. How are slopes best protected?
14. Is it wise to plant the same crop each year in the same plot of ground?
15. What is erosion? What is accelerated erosion? What is advanced erosion?
16. Name three kinds of accelerated erosion. Describe each. (gully- sheet- wind)
17. Have we any erosion near our school? What kind of erosion is it?



ATTITUDES

Outcome in Knowledge:

Greater care of water; less waste; increased respect for land and water.

Greater effort to keep grounds and garden watered.

Greater willingness to work in garden.

Increased interest in land and animal life, noted in nature walks.

Change in attitude toward government land projects. (Increased interest.)

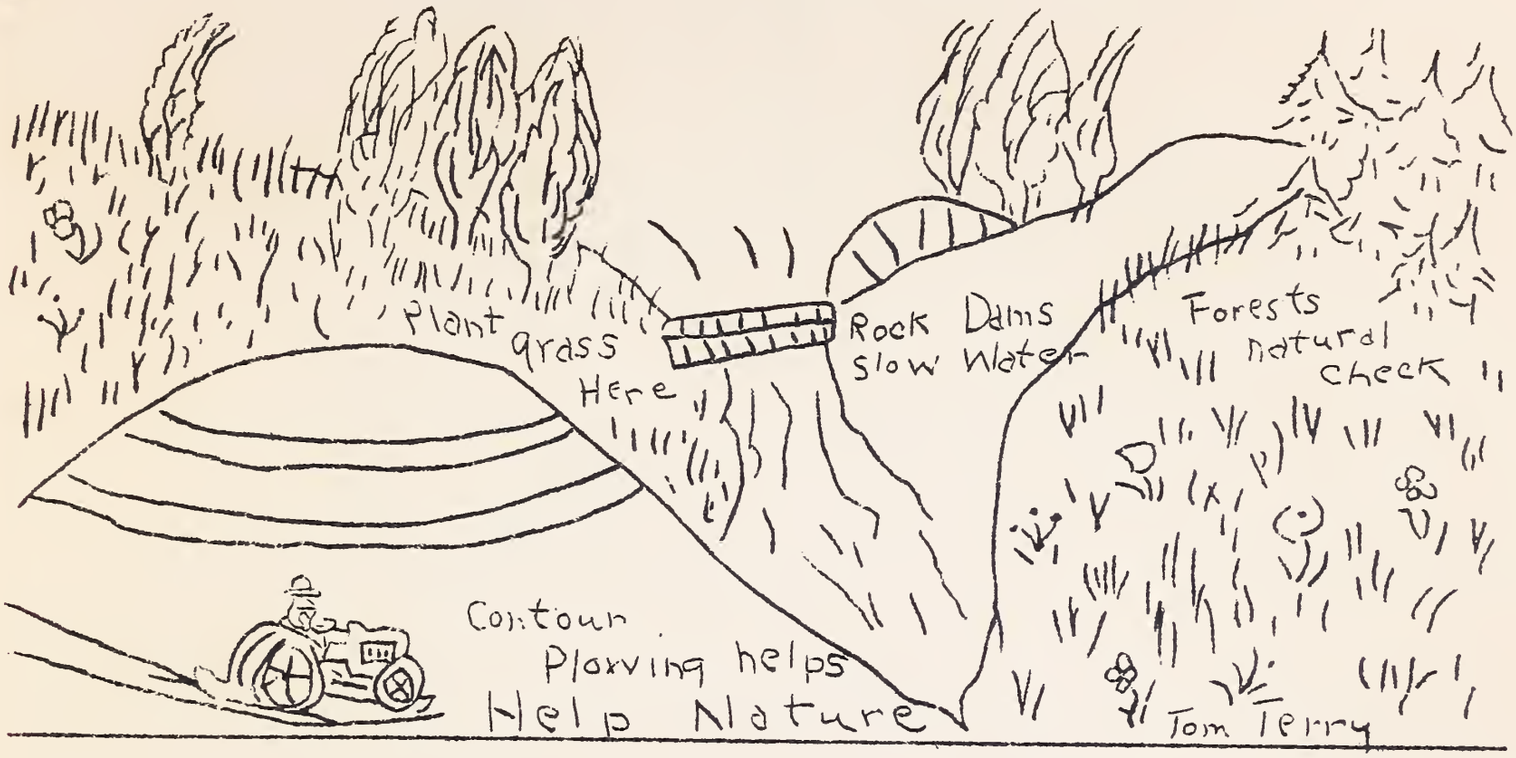
Change of attitude noted on grazing and other land use. (Increased interest.)

Improved attitude toward killing wild game indiscriminately, birds, hawks, snakes, etc.

Increased interest and cooperation in observing forestry and park rules.

Increased sense of responsibility noted in regard to fires and careless use of forest. Also, indiscriminate picking of wild flowers.

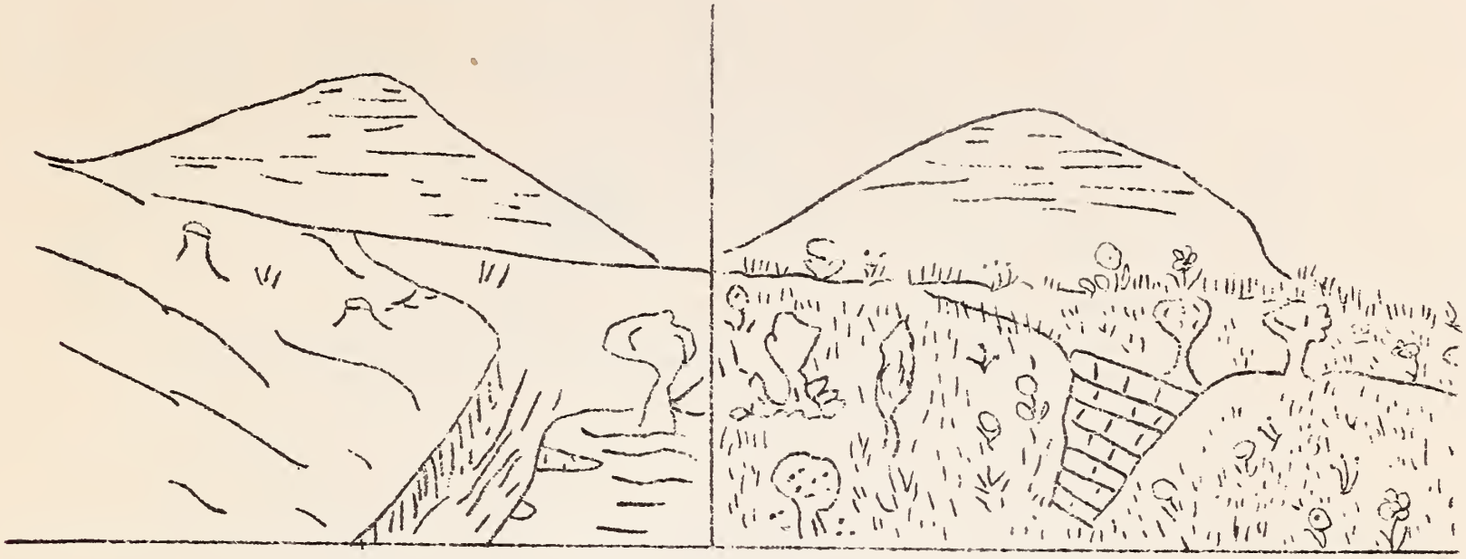
Improved social attitude toward government and other people's property.



ARRIVED AT A KNOWLEDGE THAT:

1. Topsoil is important.
2. Vegetative cover is influenced by land use.
3. Water is necessary for growth.
4. Important to catch water where it falls and use it many times.
5. Floods are expensive, destructive and wasteful.
6. Conservation of land and water is an economic necessity.
7. Floods wash away topsoil.
8. Unwise building of, and unprotected roads may promote erosion.
9. Proper number of stock, proper kind, proper herding of sheep and cattle, and seasonal use of ranges are important in range management.
10. Sheep trails are potential arroyos.
11. Forest fires are destructive not only to trees but to ground cover. They are dangerous and expensive.
12. Forests need proper care--careful cutting, proper water supply, proper grazing management.
13. We depend upon our land to live.
14. Proper rotation of crops is a wise policy.
15. Grass and sod are important in the balance of nature.
16. It is unwise to plow a steep slope.
17. Land use is a determining factor in conservation and preservation of a people and a country.

Before and after C.C.C. worked on land



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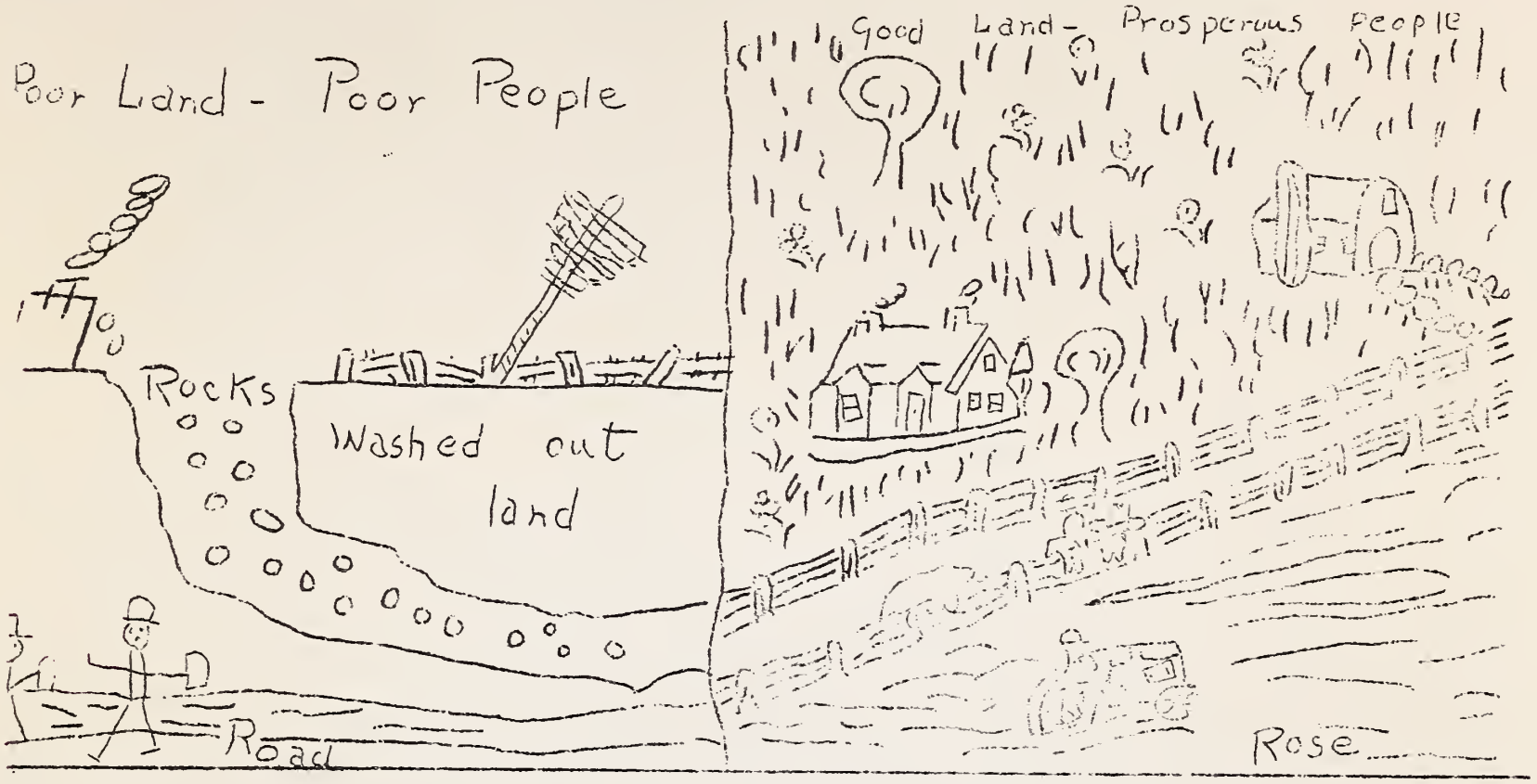

RESULTS

We learned many interesting facts about our country. We became familiar with the history of the land, and realized how closely people live to the soil. When our soil goes, people are left without resources to live. Topsoil is a long time in making, and easily and quickly lost when vegetation goes. We became conscious of the need for proper care of our resources.

1. Forests must be properly protected (small trees cared for--old ones cut)

2. Grazing must be controlled.

3. Ground needs vegetation.

4. Ground litter is important.

5. Bare ground increases water evaporation--washing away of the soil--blowing away of the soil.

6. Proper farm practices are necessary for conserving land.